

**WHAT IS CLAIMED IS:**

1. A method for producing Ti or Ti alloys through reduction by Ca, comprising:
  - a reduction electrolysis step which is consisted of holding a molten salt in a reactor cell to perform electrolysis in the molten salt in the reactor cell, the molten salt containing  $\text{CaCl}_2$  and having Ca being dissolved in the molten salt, and of generating Ti or the Ti alloys in the molten salt by supplying a metallic chloride containing  $\text{TiCl}_4$  to the molten salt so as to react with Ca generated on a cathode electrode side by the electrolysis; and
  - 10 a Ti separation step of separating Ti or the Ti alloys from the molten salt in the reactor cell or outside the reactor cell.